Transportation Improvement Board (TIB)

Arterial Inventory Sheet Instructions

Enter changes to the Arterial Inventory Sheet in the blocks provided. Please print legibly using ink or typewriter to record changes or additions to the arterial data. The blocks are marked with divisions to show the number of characters allowed for the field.

For the Controlled Intersection Data, list the requested data for **each** controlled intersection in the section. Do not group intersection data. The controlled intersection nearest the beginning termini is intersection 1. Continue listing data for each controlled intersection contained within the section. For sections with more than ten controlled intersections, attach a separate sheet listing the remaining controlled intersection data.

Control Data

Field 1 **Agency Number**
Enter the agency number. Refer to Appendix A, page 13.

Field 2 **TIB Route Number**
Enter the TIB route number. These numbers are assigned by the local agency. Federal route numbers may be used.

Field 3 **Study Section**
Enter the study section. This number is assigned by the local agency in a sequential order along a route. The sections should be based on existing field conditions and sections of arterials that would make logical construction projects. Typical study section limits should be logical changes in functional classification, geometrics, operations, pavement type or area development.

Field 4 **Urban Functional Classification**
Enter the appropriate code from the Statewide National Functional Classification System map prepared by the Washington State Department of Transportation.

- **1** PRINCIPAL - Federal Aid Code 14
- **2** MINOR - Federal Aid Code 16
- **3** COLLECTOR - Federal Aid Code 17

Field 5 **Federal Route Number**
Enter the route number shown on the Statewide Federal Functional Classification System map.

Field 6 **Urban Area Number**
Enter the urban area number. Refer to Appendix A, page 13.

Field 7 **Legislative District**
Enter the legislative district for the project. If the project lies in more than one district, enter the number that contains the majority of the project.

Field 8 **Bus Route**
Enter the appropriate code from the following choices:

- **T** Transit Buses
- **S** School Buses
- **B** Both Transit & School Buses
- **N** No Buses

Field 9 **State Highway**
If the section is a state highway, enter a Y in this field.

Field 10 **HPMS or Proposed**
Sections that are designated control sections for the Federal Highway Performance Monitoring Study will be coded X by the TIB staff. If the route is proposed, enter a P in this field.

Field 11 **Bridges**
Enter the number of bridges in the section.

Field 12 **Railroad Crossing**
Enter the number of railroad crossings in the section.

Section Data

Field 13 **Road or Street Name**
Enter the distinctive local name of the facility.

Field 14 **Termini From**
Enter the beginning termini of the study section. The termini should be described so it is easily identifiable.

Field 15 **Termini From**
Enter the ending termini of the study section. The termini should be described so it is easily identifiable.

Field 16 **Length in Miles**
Enter the length of the study section to the nearest 0.01 mile.

Field 17 **State Route or County Road Number**
If the section is a state highway or county road, enter the State Route Number or County Road Number.

Geometric & Miscellaneous Data

Field 18 **No of Thru Lanes**
Enter only the number of lanes that are continuous between the termini of the section. For two-way streets include lanes in both directions. Do not include parking or dedicated turn lanes.

Field 19 **Pavement Width**
Enter the pavement width that continues for all moving traffic lanes throughout the entire study section during peak hour traffic flow.

Field 20 **Left Shoulder Width**
Enter the width of the left shoulder to the nearest foot. Shoulders dedicated to parking, pedestrian use or as a bikeway are to be included within the shoulder width. If no shoulder exists enter 0 in the field.

Field 21 **Right Shoulder Width**
Enter the width of the right shoulder to the nearest foot. Shoulders dedicated to parking, pedestrian use or as a bikeway are to be included within the shoulder width. If no shoulder exists enter 0 in the field.

Field 22 **Shoulder Type**
Enter the appropriate code from the following choices:

- **1** PAVED - Either PCC, ACP or Bituminous
- **2** SURFACED - Gravel
- **3** EARTH
- **4** NONE - To be used if shoulder width is 0.

Field 23 **Median Width**
Enter the width from the inside edges of opposing lanes of traffic to the nearest foot. If no separation exists enter 0.

Field 24 **Median Type**
Enter the appropriate code from the following choices:

- **1** CURBED - Includes cable, box and beam guard rail
- **2** POSITIVE BARRIER - New Jersey barrier or concrete wall
- **3** UNPROTECTED - Includes ditched, paved or grass median
- **4** NONE
- **5** CONTINUOUS TURNING LANE

Field 25 **Total Roadway Width**
Enter the curb to curb width to the nearest foot. On uncurbed sections enter the sum of the lane widths and the shoulder widths. Include the median width only if it serves as a continuous turning lane.

Field 26 **Right of Way Width**
Enter the width of the right of way to the nearest foot.

Field 27 **Curbs**
Enter the appropriate code from the choices below:

- **1** One Side
- **2** Both Sides
- **N** No Curbs

Field 28 **Sidewalks**
Enter the appropriate code from the choices below:

- **1** One Side
- **2** Both Sides
- **N** No Sidewalks

Field 29 **Surface Type**
Enter the code for the type of surfacing which exists on the sections according to the choices below:

- **1** HIGH - Mixed bituminous or bituminous penetration road on a rigid base or on a combined (surface & base) thickness of seven inches or more. Also, any asphalt concrete, brick, block, or combination type road.
- **2** INTERMEDIATE - Mixed bituminous or bituminous penetration road on a flexible base with a combined (surface & base) of less than seven inches.
- **3** LOW - Bituminous surface course (less than one inch) on a base suitable to carry occasional heavy axle loads.
- **4** GRAVEL - A graded and drained road with a surface of gravel, crushed stone, slag, shell, etc., surface may be stabilized.
- **5** GRADED & DRAINED - An earth road which has been graded into a defined roadway having adequate drainage to prevent serious damage by normal surface water. Surface may be stabilized.

Field 30 **Drainage Adequacy**
Enter the appropriate code from the choices below:

- **1** Good
- **2** Fair
- **3** Poor

Instructions

Field 31 **Pavement Condition**

Time Period Rating - This value is an estimate of the life expectancy of the pavement. Life expectancy is defined as that time in the future when extraordinary maintenance effort will have to be exerted beyond that required for normal expected upkeep to maintain the roadway in an acceptable or tolerable condition. Suggested judgment factors to use for evaluation are performance history, maintenance interval, ride quality, drainage adequacy, road user complaints, existing base conditions, type of surfacing, degree of patching and/or breakup, and yearly cost of maintenance.

- **00** Backlog Condition (Life expectancy equal to present year)
- **01** 2 year life expectancy
- **02** 4 year life expectancy
- **03** 6 year life expectancy
- **04** Beyond 6 year life expectancy

For Agencies with Pavement Management Systems

If the local agency is using a Pavement Management System (PMS) to determine the pavement life, the local agency's pavement rating can be entered provided no entry is lower than 05. This will allow the TIB staff to differentiate PMS ratings from time period ratings.

Field 32 **Annual Average Daily Traffic (AADT)**

Enter the latest measured Annual Average Daily Traffic in vehicles per day as defined in the Highway Capacity Manual, Special Report 209.

Accidents

Use the latest three year accident history for the section and enter values in the appropriate fields. The number recorded for injury and fatal accidents is based on **occurrence**, not the number of people injured or killed, or the number of vehicles or objects involved.

At an intersection with another functionally classified arterial, the intersection accidents should be split between the two arterials. To split the accidents, the following percentages may be used:

Two arterials of the same functional class intersect ..... 50/50 split

Principal arterial crosses a Minor arterial ..... 60/40 split

Principal arterial crosses a Collector arterial ..... 70/30 split

Minor arterial crosses a Collector arterial..... 60/40 split

Field 33 **PDO (Property Damage Only) Accidents**

Field 34 **Injury Accidents**

Field 35 **Fatal Accidents**

Field 36

Area Development

Each urban project section should be located within an area identifiable as Central Business District, Fringe Business District, Outlying Business District, Residential Area, Or Suburban Area. Use the definitions below to determine the appropriate code.

1 CENTRAL BUSINESS DISTRICT - That portion of a municipality in which the dominant land use is for intense business activity. This district is characterized by large numbers of pedestrians, commercial vehicle loading of people and goods, heavy parking space demand, and high parking turnover.

2 FRINGE BUSINESS DISTRICT - That portion of the municipality immediately outside the central business district in which there is a wide range of business activity. This includes small businesses, light industry, warehousing, automobile service activities, and intermediate strip development, as well as some concentrated residential areas. Most of the traffic in this area involves trips that do not have an origin or a destination within the area. This area is characterized by moderate pedestrian traffic and a lower parking turnover than Central Business District areas. It may include large parking areas serving the district.

3 OUTLYING BUSINESS DISTRICT - That portion of a municipality or an area within the influence of a municipality that is normally separated geographically by some distance from the Central Business District and its fringe area in which the principal land use is for business activity. This district has its own local traffic circulation superimposed on through movements to and from the Central Business District, a relatively high parking demand and turnover, and moderate pedestrian traffic. Compact off-street shopping developments entirely on one side of the street are not included in this district

4 RESIDENTIAL AREA - That portion of municipality or an area within the influence of a municipality where the dominant land use is residential development. Small businesses may be included. This area is characterized by few pedestrians and a low parking turnover.

5 SUBURBAN - That portion of an urban area with primarily rural characteristics.

Field 37

Average Annual Traffic Growth Factor

Enter the actual average annual traffic growth factor. If not known, choose the appropriate factor from the table below.

Aberdeen-Hoquiam-Cosmopolis.....1.02	Grandview.....1.02	Pullman.....1.02
Anacortes.....1.04	Kelso-Longview.....1.02	Seattle-Everett.....1.03
Arlington.....1.03	Lynden.....1.02	Sedro Woolley.....1.03
Battle Ground.....1.03	Moses Lake.....1.03	Shelton.....1.03
Bellingham.....1.03	Mount Vernon-Burlington.....1.04	Spokane-Millwood....1.02
Bremerton-Port Orchard.....1.02	Oak Harbor.....1.04	Sunnyside.....1.03
Camas-Washougal...1.05	Olympia-Lacey-Tumwater.....1.05	Tacoma.....1.03
Centralia-Chehalis....1.02	Othello.....1.02	Toppenish.....1.03
Cheney.....1.02	Pasco-Kennewick-Richland-West Richland.....1.03	Vancouver.....1.03
Clarkston.....1.02	Port Angeles.....1.02	Walla Walla-College Place.....1.03
Ellensburg.....1.02	Port Townsend.....1.03	Wenatchee-East Wenatchee.....1.04
Enumclaw.....1.03		Yakima-Selah-Union Gap.....1.02
Ephrata.....1.03		
Ferndale.....1.02		

Instructions

Field 38 **Posted Speed Limit**
Enter the legal speed limit in effect for the section.

Field 39 **Prevailing Signalization**
Enter the code that describes the predominate type of traffic control within the study section. Select from the following codes:

- **0** None
- **1** Uncoordinated Fixed Time
- **2** Traffic Actuated
- **3** Progressive
- **4** Stop Sign

Field 40 **Type of Operation**
Enter the code from the following list that reflects the type of operation during peak hour.

- **1** One Way - All lanes are always in the same direction
- **2** Two Way -Traffic in both directions at all times
- **3** One Way Reversible - All lanes are in one direction with the direction reversing from morning to evening peak hours
- **4** Two Way Reversible - One or more, but not ALL, lanes reverse from morning to evening peak hours
- **5** One Way With High Occupancy Vehicle (HOV) Lanes
- **6** Two Way With High Occupancy Vehicle (HOV) Lanes
- **7** One Way With Exclusive Bus Lanes
- **8** Two Way With Exclusive Bus Lanes
- **9** Two Way With Exclusive Bus Roadway
- **0** Two Way With Exclusive (HOV) Roadway

Field 41 **Bikeway**
Enter the type of bikeway present on the section. Enter the appropriate code from the choices below:

- **N** None
- **1** Class I - Bike Path (*Separate trail for the principal use of bicycles)*
- **2** Class II - Bike Lane (*Curb lane for bicycle use only)*
- **3** Class III - Bike Route (*Widened curb lane)*
- **4** Class IV - Shared Roadway with No Designation *(Facility without bikeway signs or pavement markings, but accessible to bicyclists)*

Field 42

Widening Feasibility (Physical Restraints Only)

Enter the appropriate code from the following to describe the widening feasibility for the section due to physical restraints only.

- **1** Not Feasible
- **2** Yes - Less Than One Lane
- **3** Yes - One Lane
- **4** Yes - Two Lanes
- **5** Yes - More Than Two Lanes

Field 43

Horizontal Alignment Adequacy (Roadway)

Enter the appropriate code from the following list of definitions to describe the horizontal alignment of the roadway section.

- **1** All curves meet appropriate design standards. Reduction of curvature is unnecessary even if reconstruction were required to correct other deficiencies (i.e. capacity, vertical alignment).
- **2** Although some curves are below appropriate design standards for new construction, all curves can be negotiated safely and comfortably at the prevailing speed limit. The speed limit was established by the design speed curves.
- **3** Infrequent curves with design speeds less than the prevailing speed limit on the section. Infrequent curves may have reduced speed limits for safety purposes.
- **4** Several curves uncomfortable and/or unsafe at the prevailing speed limit on the section or speed limit is severely reduced due to the design speed of the curves.

Field 44

Vertical Alignment Adequacy (Roadway)

Enter the appropriate code from the following definitions to describe the vertical alignment of the roadway section.

- **1** All grades (rate and/or length) and vertical curves meet minimum design standards appropriate for the terrain. Reduction in rate or length of grade would be unnecessary if reconstruction were required to correct other deficiencies (i.e. capacity, horizontal alignment).
- **2** Although some grades (rate and/or length) and vertical curves are below design standards for new construction, all grades and vertical curves provide sufficient sight distance for safe travel. No substantial impact on the speed of trucks.
- **3** Infrequent grades and vertical curves that impair sight distance and/or affect the speed of trucks if no truck climbing lanes are provided.
- **4** Frequent grades and vertical curves that impair sight distance and/or severely affects the speed of trucks if no truck climbing lanes are provided.

Field 45

Transit Buses Per Hour

Enter the number of transit buses that travel through the section during the peak hour.

Controlled Intersection Data

Enter the data for controlled (signal or stop sign) intersections. If there are no controlled intersections within the section, leave fields 46 through 71 blank. Code the intersection data in the direction that represents the worst case conditions.

Field 46 **Direction**

Indicate the direction of the intersection data. The direction of flow must be on the arterial, not the cross street. Choose one of the following:

- **EB** Eastbound Flow
- **WB** Westbound Flow
- **NB** Northbound Flow
- **SB** Southbound Flow

Field 47 **Number of Lanes**

Enter the number of through lanes for the direction of travel being considered.

Field 48 **Lane Width**

Enter the average lane width rounded to the nearest foot.

Field 49 **Exclusive Turn Lane**

Enter the appropriate code from the choices below:

- **L** Exclusive Left Turn Lane Only
- **R** Exclusive Right Turn Lane Only
- **B** Exclusive Left and Right Turn Lanes
- **N** No Exclusive Turn Lanes

Field 50 **Number of Opposing Lanes**

Enter the number of opposing lanes. This value is used to determine the conflicts with left turn volume. For one way streets the entry will be 0. A two way arterial entry will be at 1 or greater.

Field 51 **Approach Volume**

Enter the peak hour volume including the right and left turn volumes for the direction of travel being considered.

Additional Controlled Intersection Data

Field 52 **Left Turn Percent**
Enter the percentage of the approach volume that is attributed to left turns. If exclusive left turn traffic is included in Approach Volume, there should be an entry in this field.

Field 53 **Right Turn Percent**
Enter the percentage of the approach volume that is attributed to right turns. If exclusive right turn traffic is included in Approach Volume, there should be an entry in this field.

Field 54 **Protected Right Turn Percent**
If Exclusive Right Turn Lane is coded Y and Right Turn Case is 3, enter the percentage of right turns using a protected phase. For Right Turn Cases 4 and 5, enter the percentage of right turning vehicles in the shared lane.

Field 55 **Peak Hour Factor**
Enter the actual value to the nearest hundredth. The Peak Hour Factor is a measure of consistency of demand that reflects variations in peaking characteristics. For intersections it is defined as the ratio between the number of vehicles counted during the highest 15 consecutive minutes.

Field 56 **Heavy Vehicle Percent**
Enter the actual value to the nearest percent. Heavy vehicles are those with more than four tires on the road. Calculate the percentage for a 24 hour period.

Field 57 **Conflicting Pedestrian Flow**
Enter the average number of pedestrians per hour that conflict with the right turn movement during peak hour.

Field 58 **Opposing Volume**
Enter the opposing volume at peak hour. This value is used to measure the degree of conflict with the left turn movement.

Field 59 **Opposing Left Turn Proportion**
Enter the percentage of the opposing flow that turn left. This field is used to calculate the left turn factor since the opposing left turns do not conflict with the permissive left turns for the movement being considered.

Instructions

Field 60 **Left Turn Case**

Enter the appropriate Left Turn Case from the following. Use the Highway Capacity Manual, Table 9-12 on page 9-15 to determine the correct case.

1 Exclusive Left Turn Lane - Protected phasing
2 Exclusive Left Turn Lane - Permitted phasing
3 Exclusive Left Turn Lane - Protected and permitted phasing
4 Shared Left Turn Lane - Protected phasing
5 Shared Left Turn Lane - Permitted phasing
6 Shared Left Turn Lane - Protected and permitted phasing
7 Single Lane Approach
8 Double Exclusive Left Turn Lane - Protected phasing

Field 61 **Right Turn Case**

Enter the appropriate case from the following. Use the Highway Capacity Manual, Table 9-11 on page 9-13, to determine the correct case.

1 Exclusive Right Turn Lane - Protected phasing
2 Exclusive Right Turn Lane - Permitted phasing
3 Exclusive Right Turn Lane - Protected and permitted phasing
4 Shared Right Turn Lane - Protected phasing
5 Shared Right Turn Lane - Permitted phasing
6 Shared Right Turn Lane - Protected and permitted phasing
7 Single Lane Approach
8 Double Exclusive Right Turn Lane - Protected phasing

Field 62 **Arrival Type**

Enter the appropriate arrival type from the following choices. Use the Highway Capacity Manual, pages 9-7 through 9-8 to determine the correct entry.

1 0.00 to 0.50
2 0.51 to 0.85
3 0.86 to 1.15
4 1.16 to 1.50
5 over 1.50

Field 63 **Cycle Length**

Enter the length of the cycle in seconds. Enter the cycle length that is normal during peak hour flow if the signal is not fixed time.

Field 64 **Green Time Percent**

Enter the green time to the nearest percent. This value represents the percentage of the total cycle time that a green signal is displayed on the approach under consideration. If one of two approaches is favored with a green light 65 percent of the cycle time, the other approach can utilize only 25 percent of cycle time. An equal division of green time is a 45-45 percent split.On two way and four way stop sign controlled intersections assign green time according to volume distributions on the intersection legs in conjunction with the operational characteristics for that intersection.

Field 65 **Signal Operation**

Enter the appropriate code from the following list. See the Highway Capacity Manual, page 9-2 and table 9-13 on page 9-20.

- **P** PRETIMED
- **A** ACTUATED
- **S** SEMI-ACTUATED

Field 66 **Pedestrian Push Button**

Enter Y is pedestrian push buttons exist at the signal. Otherwise, enter N.

Field 67 **Minimum Pedestrian Green Time**

Enter the minimum pedestrian green time to the nearest percent. Otherwise, leave the field blank.

Field 68 **Grade Percent**

Enter the percent of the grade to the nearest percent. If the grade is negative, enter a (-) sign before the number.

Field 69 **Peak Hour Parking**

Enter the appropriate code from the following:

- **1** PARKING ON ONE SIDE
- **2** PARKING ON BOTH SIDES
- **N** NO PARKING AT PEAK HOUR

Field 70 **Transit Bus Stops Per Hour**

Enter the number of transit buses stopping to discharge or pickup passengers at the near or far side bus stop.

Field 71 **Parking Activity**

Enter the number of parking maneuvers per hour at peak hour that occur within 250 feet of the intersection. Each vehicle entering or leaving a parking space is considered to be a parking maneuver.

Appendix A

Agency	Agency Number	Urban Area Number
Aberdeen	189	10
Anacortes	154	21
Arlington	817	35
Asotin County	002	26
Auburn	105	01
Bainbridge Island	830	07
Battle Ground	948	36
Bellevue	103	01
Bellingham	156	08
Benton County	003	04
Bonney Lake	136	29
Bothell	114	01
Bremerton	152	07
Brier	144	01
Burien	125	01
Burlington	159	22
Camas	185	16
Centralia	192	15
Chehalis	193	15
Chelan County	004	13
Cheney	168	23
Clark County	006	03
Clarkston	170	26
College Place	177	11
Cowlitz County	008	09
Des Moines	110	01
Douglas County	009	13
Edgewood	201	29
Edmonds	139	01
Ellensburg	175	17
Enumclaw	124	32
Ephrata	164	25
Everett	138	01
Federal Way	113	01
Ferndale	985	33
Fircrest	130	29
Franklin County	011	04
Grandview	183	31
Grant County	013	18
Grays Harbor County	014	10
Hoquiam	190	10
Island County	015	19
Issaquah	108	01
Jefferson County	016	28
Kelso	188	09
Kennewick	173	04
Kent	106	01
King County	017	01
Kirkland	111	01
Kitsap County	018	07
Kittitas County	019	17
Lacey	197	06
Lake Forest Park	118	01
Lakewood	199	29
Lewis County	021	15
Longview	187	09
Lynden	839	34
Lynnwood	140	01
Marysville	143	01
Mason County	023	23
Mercer Island	104	01
Mill Creek	148	01
Milton	132	01
Monroe	822	01
Moses Lake	162	18
Mount Vernon	155	22
Mountlake Terrace	141	01
Mukilteo	145	01

Appendix A

Agency	Agency Number	Urban Area Number
Newcastle	200	01
Normandy Park	112	01
Oak Harbor	157	19
Olympia	195	06
Othello	844	37
Pacific	117	01
Pasco	174	04
Pierce County	027	29
Port Angeles	150	14
Port Orchard	153	07
Port Townsend	151	28
Poulsbo	158	07
Pullman	167	12
Puyallup	129	29
Redmond	107	01
Renton	102	01
Richland	171	04
Seatac	121	01
Seattle	101	01
Sedro Woolley	126	30
Selah	182	05
Shelton	194	20
Shoreline	202	01
Skagit County	029	22
Snohomish County	031	01
Spokane	165	02
Spokane County	032	02
Steilacoom	133	29
Sumner	131	29
Sunnyside	179	24
Tacoma	128	29
Thurston County	034	06
Toppenish	178	27
Tukwila	116	01
Tumwater	196	06
University Place	203	29
Vancouver	184	03
Walla Walla	176	11
Walla Walla County	036	11
Washougal	186	16
Wenatchee	160	13
West Richland	172	04
Whatcom County	037	08
Whitman County	038	12
Woodinville	198	01
Yakima	180	05
Yakima County	039	05